

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method for the production of a biologically active prosthetic device for the reconstruction of bone tissue, comprising the following steps:

scanning a patient with CAT (Computerised Axial Tomography) in order to obtain a three-dimensional electronic model of a part of the bone and of a bone defect to be reconstructed; on the basis of the three-dimensional electronic model, producing prototype resin model of an area of the patient's bone involved by means of a three-dimensional stereolithographic technique;

by using the prototype resin model, forming a model of the patient's bone defect to be reconstructed;

~~by using the model,~~ forming a negative mould ~~which is~~ by using slip casting forming technology on the basis of the model of the patient's bone defect to be reconstructed, said negative mould being a negative of the patient's bone defect to be reconstructed;

by using the negative mould, producing a sintered ceramic semi-finished product, the dimensions and shape of the semi-finished product being slightly larger than those of the bone defect, the sintered ceramic semi-finished product having a controlled and interconnected porosity of from 30 to 90%, said porosity having a bimodal distribution of the pore dimensions in a first range of from 0.1 to 125 microns and in a second range of from 125 to 2500 microns; mechanically processing and manually finishing the sintered semi-finished product to obtain a finished ceramic product having precise dimensions and shape of the bone defect; checking the finished product in terms of dimensions and shape directly on the prototype resin model and by using the negative mold.

2. (previously presented) The method according to claim 1, wherein the step of mechanically processing and manually finishing is carried out by removing excess material using diamond milling cutters which turn at high speed.

3. (previously presented) The method according to claim 1, wherein the negative mould of the patient's bone defect comprises means able to detect any points of contact between the semi-finished product and the mould.

4. (previously presented) The method according to claim 3, wherein the means able to detect any points of contact between the semi-finished product and the mould comprise a coating of tracing paper which is coloured at points of contact.
5. (previously presented) The method according to claim 1, wherein the sintered ceramic semi-finished product is made from a Ca/P compound-based biologically active ceramic material.
6. (previously presented) The method according to claim 5, wherein the Ca/P compound-based biologically active ceramic material is selected from the group consisting of: stoichiometric hydroxyapatite; non-stoichiometric hydroxyapatite; carbonated hydroxyapatite (mainly of type B); hydroxyapatite enriched with magnesium or fluoride or with strontium or sodium; carbonated hydroxyapatite enriched with magnesium; hydroxyapatite/ β tricalcium phosphate in proportions of 50% - 50%, 70% - 30%, 30% - 70%; alpha-tricalcium phosphate (α TCP); beta-tricalcium phosphate (β TCP); mixtures of alpha-tricalcium phosphate (α TCP) and beta-tricalcium phosphate (β TCP).
7. (previously presented) The method according to claim 1, further comprising a step of final checking the finished ceramic product, in terms of dimensions and shape, the checking being carried out on the prototype resin model and by using the negative mould.
8. (previously presented) A biologically active prosthetic device for reconstructing a bone tissue obtained according to the method of claim 1, wherein the shape and dimensions derive from a model of the area of the patient's bone involved, said model being obtained using rapid prototyping technology; and wherein said prosthetic device has a structure with predetermined and interconnected porosity of from 30 to 90% with bimodal distribution of the dimensions of the pores in a first range of from 0.1 to 125 microns and in a second range of from 125 to 2500 microns, wherein said prosthetic device is made of Ca/P-based ceramic synthesis material using technologies for the impregnation/imbibition of porous supports (cellulose, polyurethane, resin), gel-casting, low pressure injection moulding.
9. (previously presented) The prosthetic device according to claim 8, wherein said prosthetic device is made of a ceramic material selected from the group consisting of: stoichiometric hydroxyapatite; non-stoichiometric hydroxyapatite; carbonated hydroxyapatite (mainly of type B); hydroxyapatite enriched with magnesium or fluoride or with strontium or sodium; carbonated

hydroxyapatite enriched with magnesium; hydroxyapatite/ β tricalcium phosphate in proportions of 50% - 50%, 70% - 30%, 30% - 70%; alpha-tricalcium phosphate (α TCP); beta-tricalcium phosphate (β TCP); mixtures of alpha-tricalcium phosphate (α TCP) and beta-tricalcium phosphate (β TCP).

10. (previously presented) The prosthetic device according to claim 8, wherein said prosthetic device constitutes a support (scaffold) for attaching cells and/or growth factors in order to create an osteoinductive effect and/or a support for "drug release" with which drugs and/or chemotherapeutic substances may be associated in medical or oncological therapies.